

Navy Advancement Center

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Advancement Handbook for Construction Electrician

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PREFACE

The purpose of the Advancement Handbook is to help you focus your preparation for Navywide advancement-in-rating examinations. The bibliographies (BIBs) together with this handbook form a comprehensive examination study package. Since this handbook provides skill and knowledge components for each paygrade of the Construction Electrician (CE) rating, it helps you concentrate your study on those areas that may be tested. This feature will help you get the most out of your study time.

Each page in Parts 1 through Part 4 of this Advancement Handbook presents general skill areas, specific skill areas, the knowledge factors associated with each skill area, the pertinent references that address each skill, and the subject areas that may be covered on the examination. The skill statements describe the skills you are expected to perform for each paygrade. The skill statements are cumulative; that is, you are responsible for the skills for the paygrade you are competing for, your present paygrade, and all paygrades below.

Although this handbook is very comprehensive, it cannot cover all the tasks performed in the rating. As a result, the advancement examinations may contain questions more detailed than described in the “*Exam Expectations*” section of the skill areas.

Remember that advancement competition is keen, so your keys to advancement include not only comprehensive advancement examination study but also sustained superior performance.

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Part 1

Advancement Handbook for CE3

Advancement Handbook for CE3

General CE <i>Skill Area</i>	Technical Administration
<i>A skill</i> you are expected to perform from the General Skill Area above:	Read drawing, specification, and electrical diagrams
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Read blueprints. • Read project specifications. • Identify types of construction drawings and diagrams. • Identify common electrical symbols.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Construction Electrician Basic (CE Basic), NAVEDTRA 11038 • Blueprint Reading and Sketching, NAVEDTRA 12014
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on reading blueprints; identifying parts of a blueprint; reading parts of a project specification; identifying parts of construction drawings; differentiating types of electrical diagrams; and identifying common electrical symbols.

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General EA <i>Skill Area</i>	Environmental Protection
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform hazardous material inventories
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the proper hazardous material elements including the following:</p> <ul style="list-style-type: none"> • Material Data Safety Sheet (MSDS) • Identification • Handling • Stowage • Labeling
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Basic Military Requirements, NAVEDTRA 12043 • Military Requirements for PO3, NAVEDTRA 12044 • CE Basic, NAVEDTRA 11038, Chapter 1
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about identifying hazardous materials; using Material Safety Data Sheets (MSDS); following basic procedures for handling hazardous materials; following proper stowage procedures; and identifying and placing placards and labels.

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General EA <i>Skill Area</i>	Construction Support
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare material for embarkation
<i>Knowledge</i> you should have to perform this skill:	<p>Prepare the following for shipment:</p> <ul style="list-style-type: none"> • Mount-out boxes • Tool kits • Materials from Naval Mobile Construction Battalion (NMCB's) Table of Allowance (TOA)
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 1 • COMSECOND/COMTHIRDNCBINST 3122.1 Series (Embarkation Manual), Chapter 3
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect basic questions about preparing NMCB supplies for shipment on a ship or a plane. You can also expect questions on loading the right amount of weight on a cargo pallet.

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General CE <i>Skill Area</i>	Construction Operation
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform standard Naval Construction Force (NCF) hand signals used in equipment operations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none">• Identify hand signals.• Give hand signals.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• CE Basic, Appendix IV
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on identifying and giving hand signals during equipment operations.

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General EA <i>Skill Area</i>	Construction Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install advanced base functional components (ABFC) assemblies
<i>Knowledge</i> you should have to perform this skill:	<p>Identify and create basic plans and drawings using the basic groupings in the Facilities Planning Guide, NAVFAC P-437, including the following:</p> <ul style="list-style-type: none"> • Components • Facilities • Assemblies
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NAVFAC P-437
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about installing ABFC component assemblies in support of contingency operations including identifying and creating basic plans and drawings.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Administer first aid under combat conditions
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the symptoms and/or basic procedures for the treatment of the following:</p> <ul style="list-style-type: none"> • CPR • Shock • Thrust • Hemorrhage • Heat and cold weather injuries • Transportation • Fractures • Burns
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on general first-aid procedures; clearing airway obstructions and clearing techniques; performing thrust techniques; performing CPR; transporting a casualty; stopping or slowing hemorrhage; controlling shock; preventing or treating heat exposure, and cold weather injuries, burns, and fractures.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform ambush countermeasures
<i>Knowledge</i> you should have to perform this skill:	Describe the counter measures for the following: <ul style="list-style-type: none">• Near (point) ambush• Far (area) ambush
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on performing ambush countermeasures; conducting drills; identifying the two types of ambushes and corresponding countermeasures; and determining the success of an ambush.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform survival, evasion, resistance, and escape procedures
<i>Knowledge</i> you should have to perform this skill:	<p>Identify effective procedures for evasion, survival, resistance, and escape including the following:</p> <ul style="list-style-type: none"> • Enemy avoidance • Concealment • Evasion travel • Individual and group survival • Water • Food • Plants • S-A-T (Save, Add to, Take care of)
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about locating the enemy and evading the enemy; recognizing signs of movement; performing evasion techniques; using recommended survival techniques including locating and preparing foods, water, and plants; and performing S-A-T in escaping and surviving as a prisoner of war.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform prisoner of war (POW) handling procedures
<i>Knowledge</i> you should have to perform this skill:	<p>Identify POW handling procedures including the following:</p> <ul style="list-style-type: none"> • Transporting • Searching • Care and Feeding • Treatment • Laws of conflict • 6-S's (search, secure, silence, segregate, safeguard, and speed the prisoner to the rear)
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about transporting, searching, caring for, and feeding prisoners. Additionally, you asked questions about the laws of conflict concerning enemy POW's and the 6-S's.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install protective and tactical wire entanglements
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the procedures for placing the following:</p> <ul style="list-style-type: none"> • Protective wire • Tactical wire • Supplemental wire
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about placing protective, tactical, and supplemental wire entanglements including identifying the purpose of the type of wire; determining where and how to lay wire; identifying the tools and equipment needed; and identifying safety precautions when laying out wire entanglements.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform chemical, biological, and radiological (CBR) defensive measures
<i>Knowledge</i> you should have to perform this skill:	<p>Identify and perform CBR defensive measures including the following:</p> <ul style="list-style-type: none"> • Protective measures before, during and after an attack • Protective equipment • Detection equipment • Decontamination equipment
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions about identifying the different types of CBR agents; recognizing the effects; detecting and identifying symptoms of infection; conducting protective measures and using detection and decontamination equipment; performing first aid and self aid; using Mission-Oriented Protective Posture (MOPP) procedures; and marking contaminated areas.</p>

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of grenadier
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the duties of a grenadier including the following:</p> <ul style="list-style-type: none"> • Characteristics of the M-203 • Ammunition of the M-203 • Safety precautions • Responsibilities of the grenadier
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on identifying the M-203 and its parts; identifying the correct ammunition to use; performing safety precautions; and performing the duties and responsibilities of the grenadier.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of a machine gun team gunner
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the duties of a machine gun team gunner including the following:</p> <ul style="list-style-type: none"> • Three types of machine guns • Characteristics • Ammunition • Positioning • Safety precautions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions about identifying the general information on the M60, MK19 MOD3 40mm and M2HB 50 cal; determining rates of fire, maximum ranges, collateral equipment, assembly and disassembly, types of ammunition; positioning the team for a defensive posture; and performing all safety precautions related to these weapons systems.</p>

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of antitank team gunner
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the duties of an antitank team gunner including the following:</p> <ul style="list-style-type: none"> • Weapon system • Characteristics • Positioning • Safety precautions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about identifying characteristics of the 84mm AT4; performing sighting, controls, operations, target engagement and firing positions; and performing all safety precautions and misfire procedures.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of fire team automatic rifleman
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the duties and responsibilities of the automatic rifleman including the following:</p> <ul style="list-style-type: none"> • Fire team movement • Communications • Weapon use
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on performing the duties and responsibilities of an automatic rifleman; controlling movement; establishing communications; and using recommended procedures with the weapon.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform land-based combat duties under CBR conditions
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the different CBR conditions including the following:</p> <ul style="list-style-type: none"> • Mission-oriented protective posture (MOPP) levels • Effectiveness
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about determining the different MOPP levels and authorizations; wearing and caring for the permeable protective clothing and mask; personal decontamination; chemical and radiological detection devices; and using contamination markers.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Place trip flares and other warning devices
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the procedures for effectively placing trip flares including the following:</p> <ul style="list-style-type: none"> • Proper use of the flares • Nomenclature of flare and fuse • Strategic locations • Precautions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on identifying the purpose of the flares; recognizing nomenclatures; determining effective placement and tripping of the flare; and using safety precautions.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform booby trap countermeasures
<i>Knowledge</i> you should have to perform this skill:	<p>Identify booby traps including the following:</p> <ul style="list-style-type: none"> • Explosive • Nonexplosive • Countermeasures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on recognizing the different explosive and nonexplosive booby traps; and using countermeasures for the safe movement of personnel and equipment.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Transport personnel injured in combat
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the procedures for transportation of a casualty including the following:</p> <ul style="list-style-type: none"> • Types of litters • Man carries
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on transporting a casualty using various types of litters; and performing the proper techniques and methods for man carries.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform minor repairs on tactical field telephone system
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the minor repair procedures for the following:</p> <ul style="list-style-type: none"> • TA-312/PT telephone • TA-1/PT telephone • SB-22/PT telephone switchboard
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on performing basic minor repairs for the various telephones and systems; identifying equipment nomenclatures; splicing cable; and determining dc power requirements.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties as fire direction control (FDC) plotter
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the procedures of plotting targets on the M17 plotting board including the following:</p> <ul style="list-style-type: none"> • Components of the board • Range and distance calculations from the mortar position to the target
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about using the M17 plotting board; plotting targets on the firing chart; computing range and distance; and using the correct procedures for preparing firing data.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of assistant gunner in a mortar platoon
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the duties and responsibilities of the assistant gunner in the mortar squad including the following:</p> <ul style="list-style-type: none"> • Placing the mortar • Firing the mortar • Maintaining the weapon
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on performing the duties and responsibilities of the assistant gunner in the mortar squad including placing, firing, and maintaining the weapon.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform mortar misfire procedures
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the procedures required in the event of a misfire including the following:</p> <ul style="list-style-type: none"> • Identifying causes and malfunctions • Dislodging the round • Disposing of the round
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on identifying the causes and malfunctions of the weapon; dislodging a round; properly disposing of a faulty round; and safely clearing a misfired round in the M225 cannon.

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General EA <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform field sanitation
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the procedures in field sanitation including the following:</p> <ul style="list-style-type: none"> • Latrines • Garbage disposal • Cold climates • Water treatment • Immersion heaters
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on conducting the procedures for installing types of latrines; disposing of garbage; identifying the types of sewage and garbage disposal methods in cold climates; purifying water; and using immersion heaters.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Climb poles and structures
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the procedures in field sanitation including the following:</p> <ul style="list-style-type: none"> • Climb poles • Maintain pole-climbing equipment
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038 • The Lineman's and Cableman's Handbook, 8th Edition
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on climbing poles and safety precautions to be followed when climbing poles and when setting up field sanitation facilities. You can also expect questions on maintaining climbing equipment and how to use them properly.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install and perform repairs on interior wiring systems
<i>Knowledge</i> you should have to perform this skill:	<p>Perform the following procedures following recommended instructions:</p> <ul style="list-style-type: none"> • Install service entrance • Install service disconnects • Install all types of conduits • Install all types of boxes • Install wiring • Install light switches • Install light fixtures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038 • National Electrical Code (NEC), Articles 110, 200, 210, 215, 220, 225, 230, 240, 250, 300, 310, 331, 333, 336, 338, 346, 347, 348, 349, 350, 351, 370, 380, and 384
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing service entrances; disconnecting service; and installing all types of conduits, boxes, light switches, and light fixtures. Additional questions may include determining the prescribed mounting heights of service entrance, switches, and boxes.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform pole-top rescue
<i>Knowledge</i> you should have to perform this skill:	<p>Conduct the following safety procedure:</p> <ul style="list-style-type: none"> • Pole-top rescue
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038 • Lineman's and Cableman's Handbook, 8th Edition, Section 47
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the steps to be followed when performing pole-top rescue.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform preventive maintenance on electrical equipment and appliances
<i>Knowledge</i> you should have to perform this skill:	Inspect and perform preventive maintenance on the following: <ul style="list-style-type: none">• Electrical equipment and appliances
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• CE Basic, NAVEDTRA 11038, Chapter 7
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on inspecting and performing preventive maintenance on electrical equipment and appliances.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install electrical appliances and equipment
<i>Knowledge</i> you should have to perform this skill:	<p>Identify appliances requirements for the following:</p> <ul style="list-style-type: none"> • Branch circuits • Control • Protection
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 7 • NEC Article 422
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on identifying appliance requirements for branch-circuit, controls and control circuits, and electrical protection. Once you have identified the requirements, you should be able to install the equipment correctly.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
<i>A skill</i> you are expected to perform from the General Skill Area above:	Perform bending and installation of electrical conduits using mechanical benders
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Bend rigid metal and nonmetallic (PVC) and electrical metallic tubing (EMT). • Install rigid, EMT, and flexible metal and nonmetallic conduits.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 5 • NEC Articles 346, 347, 348, 349, 350, and 351
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on bending conduits at 45° and 90° angles and making offset and saddle bends.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install and maintain batteries and charging systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Install batteries in a Mobile Electric Power (MEP) generator. • Charge wet-cell batteries properly. • Identify safety precautions to follow when charging batteries.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 3 • Navy Electricity and Electronics Training Series (NEETS), Module 1, Chapter 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing and charging batteries; and following the recommended safety precautions when charging batteries.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install, maintain, and test electrical grounding system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Install ground rods, ground plates, ground leads and ground conductors. • Perform soil treatment for lowering ground resistance.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 3 • NEC Articles 250-50 through 250-155 • Lineman's and Cableman's Handbook, 8th Edition, Section 26
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing ground rods, ground plates, ground leads, and ground conductors. You can also expect questions on performing soil treatments and conducting tests for proper ground resistance.

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General CE <i>Skill Area</i>	Lighting
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install area lighting system
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Define terms used in area lighting. • Describe the characteristics of different types of lamps used for area lighting. • Install and maintain streetlighting circuits.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038 • NAVFAC MO-116, Chapter 9 • Lineman's and Cableman's Handbook, 8th Edition, Section 28
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on defining terms used in area lighting and describing the characteristics of different types of lamps. You can also expect questions on installing and maintaining streetlighting circuits.

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General CE <i>Skill Area</i>	Communication
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install and maintain public address (PA) and interoffice communication (intercom)
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Install PA and intercom systems. • Demonstrate proper maintenance of PA and intercom systems.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 6 • NEETS, Module 8
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing and maintaining PA and intercom systems. You can also expect questions on the operating principles of amplifiers and speakers.

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General CE <i>Skill Area</i>	Electric Motors and Controllers
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install and maintain electrical motors
<i>Knowledge</i> you should have to perform this skill:	<p>Install and perform preventive maintenance on the following types of electric motors:</p> <ul style="list-style-type: none"> • Split-phase • Capacitor-start • Shaded-pole • Three-phase
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, Chapter 7 • Electric Motor Repair • NEC, NFPA 70 Articles 430-21 to 430-152
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing motors to a branch-circuit, connecting motors to low and high voltage operation, connecting a three-phase motor to wye or delta configurations, reversing rotations of motors, disassembling motors, and cleaning motors and their components.

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General CE <i>Skill Area</i>	Electric Motors and Controllers
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install and maintain electrical motor controllers and components, and circuits
<i>Knowledge</i> you should have to perform this skill:	Install and maintain motor controllers for single-phase and three-phase motors.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038 • Electric Motor Control • Electric Motor Repair
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing controllers, connecting and reconnecting controllers to motors, cleaning controllers, and replacing defective parts of controllers.

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General CE <i>Skill Area</i>	Safety
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain electrical safety equipment
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Perform maintenance on safety equipment that pertains to power distribution. • Observe safety rules involved in power distribution jobs.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038 • The Lineman's and Cableman's Handbook, 8th Edition, Sections 44, 45, and 46
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on proper use and care for pole-climbing equipment and related gear. You can also expect questions on observing and applying safety rules pertaining to power distribution jobs.

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General CE <i>Skill Area</i>	Generators
A <i>skill</i> you are expected to perform from the General Skill Area above:	Stand generator watches
<i>Knowledge</i> you should have to perform this skill:	Perform prestart check and write entries on the operator's log.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• CE Basic, NAVEDTRA 11038, Chapter 3
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the steps to be followed when prestarting a generator and writing down the proper entries on a generator operator's log.

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General CE <i>Skill Area</i>	Generators
<i>A skill</i> you are expected to perform from the General Skill Area above:	Perform preventive maintenance on power generating equipment
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Clean power generating equipment. • Perform preventive maintenance on a generator including its batteries.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 3
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on what proper materials and tools to use when cleaning generators. You can also expect questions on connecting, disconnecting and properly charging storage batteries.

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General CE <i>Skill Area</i>	Generators
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install, connect, and operate electrical power generators and distribution systems
<i>Knowledge</i> you should have to perform this skill:	<p>Follow procedures in the following areas:</p> <ul style="list-style-type: none"> • Install generators • Connect generators • Operate generators
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 3 • NEETS, Module 5
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing and connecting a generator for single and parallel operation. You can also expect questions on the theory of operation of a generator and recognizing an overload and underload conditions.

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General CE <i>Skill Area</i>	Electrical Tools
<i>A skill</i> you are expected to perform from the General Skill Area above:	Perform preventive maintenance on electrical power tools
<i>Knowledge</i> you should have to perform this skill:	Perform preventive maintenance on electrical power tools to include the following: <ul style="list-style-type: none"> • Troubleshooting • Minor repair • Use test equipment and instruments
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 7 • Seabee Crewleader's Handbook, Chapter 10 • NEETS, Module 3
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on performing troubleshooting and minor repair of power tools. You can also expect questions on how to use test equipment and instruments. You can also be asked about how test meters like ohmmeter, ammeter, voltmeter, wattmeter, and other types of meter operates.

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General CE <i>Skill Area</i>	Electrical Distribution Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install overhead and underground power distribution systems
<i>Knowledge</i> you should have to perform this skill:	<p>Install overhead and underground power distribution components to include:</p> <ul style="list-style-type: none"> • Poles and associated hardware • Guys • Conductors • Install transformers • Protective devices • Install conduits and ducts
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 4 • The Lineman's and Cableman's Handbook, 8th Edition, Sections 11 to 13
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing pole, guys, conductors, transformers, protective devices, conduits, ducts, and all associated hardware that comes with overhead and underground distribution systems.

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General CE <i>Skill Area</i>	Electrical Distribution Systems
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate and maintain power distribution equipment
<i>Knowledge</i> you should have to perform this skill:	<p>Operate and maintain power distribution equipment to include the following:</p> <ul style="list-style-type: none"> • Protective devices • Switches and breakers • Manual lifting equipment
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 4 • The Lineman's and Cableman's Handbook, 8th Edition, Sections 11 to 13 • NAVFAC MO-200, Chapters 3 and 4
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on how protective devices, switches, breakers, and manual lifting equipment operate. You can also expect questions on maintaining this equipment.

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General CE <i>Skill Area</i>	Logistics
A <i>skill</i> you are expected to perform from the General Skill Area above:	Conduct tool kit inventories
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify tool kit elements • Inspections • Tool requisitioning • Loss control
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 1 • Seabee Supply Manual, COM2ND/COM3RDNCBINST 4400.3
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the individual element of a tool kit inventory, such as performing custodian responsibilities; conducting proper inventories; requisitioning replacement tools; and tracking replenishment activities.

Part 2

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General CE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Work from construction drawings and specifications. Prepare shop drawings and sketches
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify parts of a blueprint. • Identify all types of electrical diagrams. • Identify types of drawing lines.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Construction Electrician Basic, NAVEDTRA 11038, Chapter 2 • Construction Electrician Intermediate, NAVEDTRA 11039, Chapter 2 • Blueprint Reading and Sketching NAVEDTRA 12014
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on identifying parts of a set of blueprints; stating the purpose of each types of drawing; and identifying drawing symbols. You can also expect questions in identifying and stating the purpose of all types of electrical diagrams.

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General CE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare timecards
<i>Knowledge</i> you should have to perform this skill:	<p>Understand the labor accounting system to include the following:</p> <ul style="list-style-type: none"> • Reporting criteria • Labor categories • Labor codes
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • COMSECONDNCB/COMTHIRDNCBINST 5312.1 • Seabee Crewleader's Handbook, Chapter 8 • CE Intermediate, NAVEDTRA 11039, Chapter 1
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about following reporting criteria; preparing labor distribution reports; identifying specific labor categories; and using labor codes.

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General CE <i>Skill Area</i>	Environmental Protection
A <i>skill</i> you are expected to perform from the General Skill Area above:	Update and maintain material safety data sheet (MSDS) files
<i>Knowledge</i> you should have to perform this skill:	<p>Maintain material data sheets to include the following:</p> <ul style="list-style-type: none"> • Filing system • Knowledge of risks and hazards, personnel protective equipment requirements, and safety procedures and precautions • Requirements for the acceptance of a hazardous material
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee's Crewleader's Handbook
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about understanding the contents of a MSDS sheet; identifying when they are issued; and maintaining the sheets in accordance with regulations.

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General CE <i>Skill Area</i>	Construction Support
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare Naval Construction Forces project packages
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the project planning phases to include the following:</p> <ul style="list-style-type: none"> • Level I, II, and III schedules • Project planning checklist • Instructions for the Seabee project package
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Crewleader's Handbook, Chapter 14
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions in identifying the different aspects of project planning; utilizing the precedence diagram; identifying parts of an activity block; and identifying parts of a project package.

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General CE <i>Skill Area</i>	Construction Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Direct and coordinate installation of Advanced Base Functional Component (ABFC)
<i>Knowledge</i> you should have to perform this skill:	<p>Coordinate and direct personnel to identify and create basic plans and drawings using the basic groupings in the Facilities Planning Guide, NAVFAC P-437, to include the following:</p> <ul style="list-style-type: none"> • Components • Facilities • Assemblies
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Facilities Planning Guide, NAVFAC P-437, Volumes I and II • CE Intermediate, NAVEDTRA 11039, Chapter 1
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about creating ABFC layouts; using terminology; and identifying plans and drawings in support of contingency operations.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Conduct patrols
<i>Knowledge</i> you should have to perform this skill:	<p>Explain the procedures used to conduct patrols to include the following:</p> <ul style="list-style-type: none"> • Planning and preparation • Classification • Mission • Size • Formation • Control • Security • Movement • Execution of mission
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the procedures to follow in conducting patrols, such as, planning and preparation, patrol classification, mission, size, formation, control, security, movement, and execution of mission (before, during, and after).

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of fire team leader
<i>Knowledge</i> you should have to perform this skill:	<p>Explain the duties and responsibilities of a fire team leader to include the following:</p> <ul style="list-style-type: none"> • Mission • Defensive position • Fire plans • Movement • Formation
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about performing the duties of a fire team leader including determining the mission; positioning a fire team on the forward line of troops (FLOT); working with fire plans; identifying suitable movements; and using various formations.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of machine gun team leader
<i>Knowledge</i> you should have to perform this skill:	<p>Explain the duties and responsibilities of a machine gun team leader to include the following:</p> <ul style="list-style-type: none"> • Weapon characteristics • Weapon placement • Fire plan • Fire command • Fire control • Fire discipline • Fire distribution • Fire technique • Team member responsibility
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions about performing the duties and responsibilities of a machine gun team leader; knowing the characteristics and placement of the weapon; using fire plans; giving fire commands; performing fire control, fire discipline, fire distribution, and fire technique; and identifying the responsibility of each member of the fire team.</p>

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of anti-tank team leader
<i>Knowledge</i> you should have to perform this skill:	<p>State the duties and responsibilities of an antitank team leader to include the following:</p> <ul style="list-style-type: none"> • Weapon characteristics • Employment • Operation • Safety
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about performing the duties and responsibilities of an antitank team leader; identifying weapon characteristics; employing and operating the weapon; and using weapon safety.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Employ claymore mines
<i>Knowledge</i> you should have to perform this skill:	<p>Explain the procedures used for employment of the M18A1 claymore mine to include the following:</p> <ul style="list-style-type: none"> • Nomenclature • Countermeasures • Coverage and methods of fire • Firing device • Installation and firing
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions about employing the M18A1 claymore mine; identifying its nomenclature; using countermeasures; determining coverage and methods of fire; using the firing device; installing the mine; and firing.</p>

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Position perimeter guards
<i>Knowledge</i> you should have to perform this skill:	Position guards to include the following: <ul style="list-style-type: none"> • Fighting emplacements • Fields of fire • Fire distribution
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about determining maximum cover and concealment; constructing a defensive position; providing dug-in emplacements; performing observations; recognizing fields of fire; identifying rifle fire and platoon firing; and determining the extent of target.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Lay out protective and tactical wire entanglements
<i>Knowledge</i> you should have to perform this skill:	<p>Explain the requirements and procedures used in placing protective and tactical wire entanglements to include the following:</p> <ul style="list-style-type: none"> • Supplementary • Depth • Effectiveness • Uses • Barbed wire • Concertina fencing • Barbed steel tape • Placement
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions about identifying the requirements and using recommended procedures in placing protective and tactical wire entanglements and supplementary wire; determining depth, effectiveness, and uses; identifying different wires and placements for barbed wire, concertina wire, and barbed steel tape.</p>

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Lay out trip flares and other warning devices
<i>Knowledge</i> you should have to perform this skill:	<p>Explain the procedures used to set trip flares and warning devices to include the following:</p> <ul style="list-style-type: none"> • Uses • Location • Explosive devices • Nonexplosive devices • Countermeasures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about using trip flares and warning devices; identifying their uses; determining location; using explosive and nonexplosive devices; and conducting countermeasures.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of mortar crew leader/gunner
<i>Knowledge</i> you should have to perform this skill:	<p>Describe the duties and responsibilities of mortar crew leader and gunner to include the following:</p> <ul style="list-style-type: none"> • Description and characteristics of the 60-MM mortar • Assemblies and components • Ammunition • Equipment • Positioning • Preparation for firing • Sighting • Loading and firing • Safety
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions about performing the duties and responsibilities of a mortar crew leader or gunner; describing the characteristics of the weapon, its assemblies, components, and ammunition; using specific equipment; positioning and preparing for firing; performing the operations of sighting, loading and firing, and safety.</p>

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maneuver fire team using arm and hand signals
<i>Knowledge</i> you should have to perform this skill:	<p>Describe the procedures to maneuver fire teams using arm and hand signals to include the following:</p> <ul style="list-style-type: none"> • Speed • Direction • Enemy in sight • Assemble • Column • Echelons • Wedge • Vee • Fire team • Open • Close • Rally point • Objective rally point
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about maneuvering fire teams using specific arm and hand signals; and establishing fire team positions.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain and repair generating and control equipment (excluding prime mover)
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Perform preventive maintenance on an electrical generator. • Troubleshoot and repair electrical generators.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 3 • CE Intermediate, NAVEDTRA 11039, Chapter 3 • Navy Electricity and Electronics Training Series (NEETS), Modules 3 and 5 • NAVFAC P-8-626-12, Chapter 3 (Operator and Organizational Maintenance Manual, Generator Set, Diesel driven, Tactical)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the three major categories of maintenance as well as questions on performing minor repairs on stationary and mobile generators (MEP models).

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
<i>A skill</i> you are expected to perform from the General Skill Area above:	Plan installation of interior wiring system
<i>Knowledge</i> you should have to perform this skill:	<p>Plan and estimate interior wiring systems to include the following:</p> <ul style="list-style-type: none"> • Interior wiring terminology • Feeder and branch-circuit wire sizes and requirements • Conduit installation • Hazardous location installation • Boxes and panelboards installation • Branch circuit protection • Interior lighting • Activity and quantity estimates for materials • Equipment estimates • Labor estimates
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038 • CE Intermediate, NAVEDTRA 11039 • Seabee Planner's and Estimator's Handbook, NAVFAC P-405 • NEC NFPA 70 Articles, 90, 100, 110, 200, 210, 215, 220, 225, 230, 240, 250, 300, 310, 331, 333, 336, 338, 346, 347, 348, 349, 350, 351, 370, 380, and 384 and tables related to each article
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions on planning feeder and branch circuits, conduit installation, hazardous location installation, boxes and panelboard installation, branch circuit protection, and interior lighting installation and estimating materials, equipment, and labor requirements for a project.</p>

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Plan power distribution systems [Occupational standard number(s): H012]
<i>Knowledge</i> you should have to perform this skill:	Plan power distribution systems to include the following: <ul style="list-style-type: none"> • Installation of poles, crossarms, and guys • Installation of wires and grounds • Installation of transformers and distribution circuit protections • Installation of underground electrical systems
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 4 • CE Intermediate, NAVEDTRA 11039, Chapter 4 • Lineman's and Cableman's Handbook, 8th Edition
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on planning the installation of poles and related components, wires and grounds, transformers, and protective equipment. You can also expect questions on planning the installation of underground distribution.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Diagnose and repair electrical equipment and appliance
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Troubleshoot electrical equipment and appliances. • Repair electrical equipment and appliances. • Compute resistance, voltage drop, current, and power in an electrical circuit.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 7 • CE Intermediate, NAVEDTRA 11039, Chapter 7 • NEETS, Modules 1, 2, 3, 4, 5, and 7
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on troubleshooting and repairing common electrical equipment and appliances, such as washing machines, clothes dryers, electric ranges, and hot-water heaters. You can also expect questions on electrical theory involving Ohm's law and impedance calculations in an alternating current circuit.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform bending and installation of electrical conduits using hydraulic benders
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Bend conduit using a hydraulic bender. • Recall safety procedures when using power benders. • Install conduit using conduit hangers.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Intermediate, NAVEDTRA 11039, Chapter 5 • American Electrician's Handbook, 12th Edition, Chapter 9
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on bending conduits using power benders and recalling safety precautions needed when using power benders. You can also expect questions on installing conduits using hangers and other types of support.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install security alarms, indicating systems, fire detection, and fire alarm systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify types of fire alarm systems. • Install alarm systems.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Intermediate, NAVEDTRA 11039, Chapter 8 • NAVFAC MO-117 (Maintenance of Fire Protection Systems) • Design and Application of Security/Fire-Alarm Systems
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on identifying the different types of fire alarm systems and applying the new techniques for installing alarm systems.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Compute electrical load requirements
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Compute load requirements to include the following conductors: <ul style="list-style-type: none"> • Service conductors • Feeder • Branch-circuit conductors • Lighting circuit
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Intermediate, NAVEDTRA 11039, Chapter 5 • NEC NFPA 70 Articles, 110, 200, 210, 215, 220, 225, 230, 240, and 250 • American Electrician's Handbook, 12th Edition, Divisions 3 and 10
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on computing conductor sizes for service, feeder, branch, and lighting circuits. You can also expect questions on general lighting, receptacle, small appliance, and laundry loads.

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General CE <i>Skill Area</i>	Lighting
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install and maintain street and security lighting systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Install series and multiple lighting circuits including control components. • Perform maintenance on lighting circuits and luminaires.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 6 • CE Intermediate, NAVEDTRA 11039, Chapter 6
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions on installing street, security, and area lighting circuits to include the following:</p> <ul style="list-style-type: none"> • Lighting intensity calculations • Street and area classification • Luminaire selection • Mounting height calculation • Floodlight aiming

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General CE <i>Skill Area</i>	Lighting
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install and maintain airfield lighting systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Install expeditionary airfield lighting systems. • Maintain expeditionary airfield lighting system.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Intermediate, NAVEDTRA 11039, Chapter 6
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions on installing and maintaining airfield lighting system to include the following:</p> <ul style="list-style-type: none"> • Power supply • Lighting vault • Controls (master sequence timer) • Runway, taxi, approach, marker, threshold, and beacon lights

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General CE <i>Skill Area</i>	Electric Motors and Controllers
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install and maintain electrical controller circuit cards and components
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall the different types of motor controllers and identify their purpose. • Install electric motor controllers including circuit cards. • Perform preventive maintenance electric motor controllers. • Troubleshoot and perform minor repairs on motor controllers.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 7 • CE Intermediate, NAVEDTRA 11039, Chapter 7 • Electric Motor Repair, Chapter 4 • American Electrician's Handbook, Division 7
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing, maintaining, troubleshooting, and repairing motor controllers. You can also expect questions on motor branch-circuits, overload protection, thermal protection, and grounding motors.

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General CE <i>Skill Area</i>	Communication
<i>A skill</i> you are expected to perform from the General Skill Area above:	Plan installation of multi-pair and fiber optic cables
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify the components of fiber-optic cables and circuit components. • Splice single-fiber and multi-fiber-optic cables.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 6 • CE Intermediate, NAVEDTRA 11039, Chapter 6 • NEETS, Module 24, Introduction to Fiber Optics
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on identifying the components of a fiber-optic circuit. You can also expect questions on performing different ways of splicing fiber-optic cables.

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General CE <i>Skill Area</i>	Safety
A <i>skill</i> you are expected to perform from the General Skill Area above:	Implement excavation and shoring safety requirements
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall excavation and shoring requirements. • Identify slopes to use on different types of soil. • Identify safety hazards and safety precautions when excavating.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Intermediate, NAVEDTRA 11039, Chapter 1 • Code of Federal Regulations, Title 29, Part 1926, Subpart P
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on recalling and identifying safety precautions and requirements when excavating (including trenching). You can also expect questions on what slopes to use on different types of soil.

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General CE <i>Skill Area</i>	Generators
A <i>skill</i> you are expected to perform from the General Skill Area above:	Plan installation of electric power generators and distribution and systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall the operating theory of electrical generators. • Install and operate a generator for single operation. • Connect two generators and operate them for parallel operation. • Determine the power and voltage requirements.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 3 • CE Intermediate, NAVEDTRA 11039, Chapter 3 • NEETS, Module 5, Introduction to Motors and Generators • American Electrician's Handbook, Division 7
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on recalling the operating theory of electrical generators; installing and operating two generators for parallel operation; determining the power and voltage requirements; and computing the load.

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General CE <i>Skill Area</i>	Electrical Tools
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate and maintain cable and wire pulling systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify proper techniques in pulling electrical conductors through a conduit. • Perform preventive maintenance on cable and wire pullers.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Intermediate, NAVEDTRA 11039, Chapter 5 • American Electrician's Handbook, Division 9
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on identifying proper techniques when pulling wires; determining the proper tension needed to pull wires; and performing preventive maintenance on cable and wire pullers.

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General CE <i>Skill Area</i>	Electrical Distribution Systems
<i>A skill</i> you are expected to perform from the General Skill Area above:	Plan and maintain overhead and underground distribution systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Identify the different types of overhead distribution systems configuration. • Determine pole locations. • Recall transformer connections. • Recall power factor correction. • Install power capacitors. • Install manholes, wire ducts, conduits, and cables underground.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 4 • CE Intermediate, NAVEDTRA 11039, Chapter 4 • American Electrician's Handbook, Division 8 • Lineman's and Cableman's Handbook, Sections 1 to 36
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on planning the installation of overhead and underground distribution systems. Questions may include transformer connections; power factor correction; capacitor installation; pole installation; and protective and interrupting devices installation. You can also expect questions on installing manholes, handholes, ducts, conduits, and other related underground systems components.

Part 3

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General CE Skill Area	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare red line drawings
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Update original contract drawings to show as-built conditions.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Engineering Aid (EA) Basic, NAVEDTRA 10696-A, Chapter 10 • Seabee Crewleader's Handbook, Chapter 13
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on revising the original blueprints of a project to reflect the changes or additions that were added to the actual project.

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General CE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform facilities maintenance inspections
<i>Knowledge</i> you should have to perform this skill:	<p>Perform facilities maintenance inspections to include the following:</p> <ul style="list-style-type: none"> • Control inspection procedures • Preventive maintenance inspection procedures • Operator inspection procedures • Reports and records • Annual inspection summary (AIS)
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Naval Construction Force/Seabee 1 & C, NAVEDTRA 12543 • Inspection of Shore Facilities, NAVFAC MO-322
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about inspection system descriptions, types of inspections, inventory, forms and record keeping, purpose and scope of AIS, and inspection procedures.

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General CE Skill Area	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare work request and job orders
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> Recall the different types of job orders and their differences. Recall which forms to use for each type of job order.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> NCF/Seabee 1 & C, NAVEDTRA 12543, Chapter 9
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on recalling the different types of job orders pertaining to public works and camp maintenance.

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General CE <i>Skill Area</i>	Management and Supervision
A <i>skill</i> you are expected to perform from the General Skill Area above:	Conduct Personnel Readiness Capability Program (PRCP) interviews
<i>Knowledge</i> you should have to perform this skill:	<p>Conduct PRCP interviews to include the following:</p> <ul style="list-style-type: none"> • Interviewer's responsibilities • Understanding the guides • Interviewing steps • Standard action statements
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Construction Electrician (CE) Intermediate/Advanced, NAVEDTRA 12540 • Personnel Readiness Capability Program, NAVFAC P-458, Volume 4
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about standard terms, interview sequence, skill definitions and levels, tasks and elements, and standards and guides.

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General CE <i>Skill Area</i>	Management and Supervision
A <i>skill</i> you are expected to perform from the General Skill Area above:	Direct operation of a power plant
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall the operation of a single generator. • Recall the operation of parallel generators.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Intermediate, NAVEDTRA 11039, Chapter 5 • CE1, NAVEDTRA 12525, Chapter 5
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on operating generators in either single or parallel operations. You can also expect questions on power and voltage determination, electrical load computation, sheltering generators, and maintaining a power plant.

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General CE <i>Skill Area</i>	Management and Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Direct installation of interior wiring systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall installation of interior wiring systems.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 5 • CE Intermediate, NAVEDTRA 11039, Chapter 5 • CE1, NAVEDTRA 12525, Chapter 3 • NEC NFPA 70
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing conduits, conductors, and boxes. You can also expect questions on computing electrical load requirements for general lighting loads, small appliance and laundry loads, receptacle loads, feeder and branch circuits, and fixed appliance loads.

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General CE <i>Skill Area</i>	Management and Supervision
A <i>skill</i> you are expected to perform from the General Skill Area above:	Direct installation of overhead and underground distribution systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall installation of overhead and underground.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 4 • CE Intermediate, NAVEDTRA 11039, Chapter 4 • CE1, NAVEDTRA 12525, Chapters 5 and 6
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing poles, pole hardware and insulators, guy wires, overhead conductors, transformers, capacitors, circuit protectors, and circuit controllers. You can also expect questions on installing manholes, handholes, underground conduit systems, and direct burial cables.

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General CE <i>Skill Area</i>	Environmental Protection
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor environmental protection programs for compliance
<i>Knowledge</i> you should have to perform this skill:	<p>Evaluate environmental protection programs for compliance to include the following:</p> <ul style="list-style-type: none"> • Environmental pollution • Water pollution • Ground pollution • Air pollution • Solid waste • Pollution impact areas
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about conducting protection programs and compliance procedures; using techniques for the identification, prevention, and cleanup of water, ground, and air environmental pollutants; and performing cleanup of oil spills and other hazardous materials.

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General CE <i>Skill Area</i>	Construction Support
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain project packages
<i>Knowledge</i> you should have to perform this skill:	<p>Maintain project packages to include the following:</p> <ul style="list-style-type: none"> • General information and correspondence • Activities and network • Resources • Plans • Drawings/specifications
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Seabee Crewleader's Handbbook
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about recognizing the organization's structure and identifying contents and reports contained in a typical project package.

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General CE <i>Skill Area</i>	Construction Support
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare and perform construction network analysis
<i>Knowledge</i> you should have to perform this skill:	<p>Recall the procedures for preparing a network analysis to include the following:</p> <ul style="list-style-type: none"> • Construct a logic network • Sequence of work • Forward and backward pass • Typical activity block • Total float, free float, and lag times • Different logic types
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Seabee Planner's and Estimator's Handbook, NAVFAC P-405 • Seabee Crewleader's Handbook
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions about identifying facts within the information blocks within an activity block, determining critical path, running a forward and backward pass, calculating free and total float and lag time, establishing logical sequence of activities, and using different logic types.</p>

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General CE <i>Skill Area</i>	Construction Support
A <i>skill</i> you are expected to perform from the General Skill Area above:	Prepare equipment, manpower, material, and estimates from drawings and specifications
<i>Knowledge</i> you should have to perform this skill:	<p>Recall the procedures for preparing estimates based on drawings and specifications to include the following:</p> <ul style="list-style-type: none"> • Material estimates • Equipment estimates • Labor estimates
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Planner's and Estimator's Handbook, NAVFAC P-405 • CE Intermediate/Advanced, NAVEDTRA 12540 • Facilities Planning Guide, NAVFAC P-437, Volumes I and II
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about drawings and specifications, estimating work sheets, material takeoff (MTO), bill of material (BM), waste and loss factors, equipment production, a table of allowance, preliminary and detailed manpower estimates, and manpower production efficiency

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General CE <i>Skill Area</i>	Construction Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Direct and Coordinate Installation of Advanced Base Functional Components (ABFC) Facilities
<i>Knowledge</i> you should have to perform this skill:	<p>Direct and coordinate the use and application of the Facilities Planning Guide to include ABFC groupings of the following:</p> <ul style="list-style-type: none"> • Components • Facilities • Assemblies
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Facilities Planning Guide, NAVFAC P-437, Volumes I and II
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about ABFC development, components, facilities, and assemblies, organization of the guides, DOD category codes, and tailoring components and facilities for site adaptability.

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General CE <i>Skill Area</i>	Construction Combat Readiness
<i>A skill</i> you are expected to perform from the General Skill Area above:	Prepare rough maps, field sketches, and overlays
<i>Knowledge</i> you should have to perform this skill:	<p>Explain the procedures used to prepare rough maps, field sketches, and overlays to include the following:</p> <ul style="list-style-type: none"> • Cover and concealment • Obstacles • Avenues of approach • Panoramic • Topographic • Overlay uses • Register marks
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions about preparing and using maps, field sketches, and overlays, cover and concealment, obstacles and ways to overcome them, selecting avenues of approach, panoramic and topographic sketches and maps, and overlay requirements.</p>

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform the duties as rifle squad leader
<i>Knowledge</i> you should have to perform this skill:	<p>Explain the duties and responsibilities a of rifle squad leader to include the following:</p> <ul style="list-style-type: none"> • Ideal squad composition • Discipline • Appearance • Training • Control • Squad conduct • Weapons • Equipment
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about performing the duties and responsibilities of the rifle squad leader, ideal number of personnel assigned, discipline, professional appearance, squad training, control and squad conduct, weapons and equipment, fire control, fire discipline, and squad movement.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of the platoon guide
<i>Knowledge</i> you should have to perform this skill:	Describe the duties and responsibilities of the rifle platoon guide to include the following: <ul style="list-style-type: none"> • Administration • Supply and timely resupply • Casualty record
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about performing the duties and responsibilities of the rifle platoon guide, administrative duties, such as supply, timely resupply and casualty reporting, and weapon assignment.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of the rifle platoon petty officer
<i>Knowledge</i> you should have to perform this skill:	Describe the duties and responsibilities of a rifle platoon petty officer to include the following: <ul style="list-style-type: none"> • Assistant to the platoon commander • Squad position • Weapons qualification
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about performing the duties and responsibilities of the rifle platoon petty officer, squad position, and weapons qualification. As assistant to the platoon commander, you must also know the responsibilities of the platoon commander and act as platoon commander in his/her absence.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of the machine gun squad leader
<i>Knowledge</i> you should have to perform this skill:	<p>Explain the duties and responsibilities of the machine gun squad leader to include the following:</p> <ul style="list-style-type: none"> • Selection and assignment of positions and targets • Weapons qualification
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about performing the duties and responsibilities of the machine gun squad leader, selecting and assigning positions and targets, and conducting weapons qualifications. Your duties are very similar to that of the rifle squad leader.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of the antitank squad leader
<i>Knowledge</i> you should have to perform this skill:	<p>Describe the duties and responsibilities of the antitank squad leader to include the following:</p> <ul style="list-style-type: none"> • Basic duties • Selection and assignment of positions and targets • Weapons qualification • Other equipment
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about performing the duties and responsibilities of the antitank squad leader, basic duties, selecting and assigning positions and targets, conducting weapons qualification, and performing other assigned duties.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties of the weapons platoon petty officer
<i>Knowledge</i> you should have to perform this skill:	Describe the duties and responsibilities of the weapons platoon petty officer to include the following: <ul style="list-style-type: none"> • Weapons qualification
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about performing the duties and responsibilities of the weapons platoon petty officer and conducting weapons qualification and other duties such as those described by the rifle platoon petty officer.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Direct installation of protective and tactical wire entanglements
<i>Knowledge</i> you should have to perform this skill:	<p>Determine the requirements for placing protective and tactical wire entanglements to include the following:</p> <ul style="list-style-type: none"> • Uses • Construction • Types • Classification
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about identifying the installation of protective and tactical wire entanglements, their uses, construction, types, and classification.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Instruct perimeter guards
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the procedures for instructing perimeter guards to include the following:</p> <ul style="list-style-type: none"> • Fighting emplacements • Fields of fire • Fire distribution
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about maximum cover and concealment, constructing a defensive position, establishing dug-in emplacements, conducting observations, recognizing fields of fire, performing rifle fire and platoon firing, and determining the extent of target.

Advancement Handbook for CE1

General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Direct installation of trip flares and other warning devices
<i>Knowledge</i> you should have to perform this skill:	<p>Determine the requirements for the placement of trip flares and other warning devices to include the following:</p> <ul style="list-style-type: none"> • Grenades • Claymore mines • Trip flares • Booby traps • Explosive and nonexplosive devices • Countermeasures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about identifying the requirements and uses when placing trip flares and other warning devices, such as grenades, claymore mines, booby traps, explosive and nonexplosive devices and conducting countermeasures.

Advancement Handbook for CE1

General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Direct placement of aiming stakes
<i>Knowledge</i> you should have to perform this skill:	Explain the purpose for using aiming stakes to include the following: <ul style="list-style-type: none">• Limits• Night fire
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• Seabee Combat Handbook, Volume 1, NAVEDTRA 12003
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about using aiming stakes tactically and safely.

Advancement Handbook for CE1

General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Diagnose and repair electronic circuits to component level
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall electrical theory on both ac and dc circuits. • Recall Ohm's Law and Kirchhoff's Law. • Determine voltage, current, resistance, and power of a circuit on an ac and dc circuits.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NEETS, Modules 1, 2, and 3
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on direct current circuit calculations using Ohm's Law and Kirchhoff's Law on series, parallel, and combination circuits. You can also expect questions on alternating current circuits and determining the capacitance, inductance, total reactance, and impedance of an ac circuit.

Advancement Handbook for CE1

General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Compute project electrical load requirements
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Determine the size of service entrance conductors and neutral conductor. • Determine the size of feeder and branch circuits and voltage drops for each type of circuits. • Recall the types of industrial loads.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE1, NAVEDTRA 12525, Chapter 3 • NFPA 70
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on determining wire sizes for service entrance, feeder, branch, and motor circuits. You can also expect questions on general lighting loads and types of industrial loads.

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General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
<i>A skill</i> you are expected to perform from the General Skill Area above:	Maintain and repair security alarms and indicating systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall the theory of operation of indicating and fire alarm systems. • Perform preventive maintenance on indicating and fire alarm systems.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Maintenance of Fire Protection Systems, NAVFAC MO-117 • CE Intermediate, NAVEDTRA 11039, Chapter 8 • CE1, NAVEDTRA 12525, Chapter 7
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on recalling the theory of operation of indicating and fire alarm systems. You can also expect questions on performing preventive maintenance and performing minor repairs of security and fire alarm systems.

Advancement Handbook for CE1

General CE <i>Skill Area</i>	Electrical/Electronic Maintenance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain and repair power generating systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall the theory of operation of power generating systems. • Perform preventive maintenance and minor repairs on electrical generators.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 3 • CE Intermediate, NAVEDTRA 11039, Chapter 3 • CE1, NAVEDTRA 12525
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on performing preventive maintenance and performing minor repairs on electrical generators specially MEP generators that are extensively used by Seabees. In order to perform the above tasks effectively, you should know the theory of operation of generators.

Advancement Handbook for CE1

General CE <i>Skill Area</i>	Electrical Tools
A <i>skill</i> you are expected to perform from the General Skill Area above:	Administer power tool safety inspection program
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Recall safety requirements when using power tools. • Recall safety instructions pertaining to power tools.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • CE Basic, NAVEDTRA 11038, Chapter 7 • Seabee Crewleader's Handbook, Chapter 10 • CFR, Part 1926, Subpart I, Section 1926.300 to 1926.307 • COMSECOND/COMTHIRDNCBINST 5100.1, Chapter 24
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on recalling safety requirements when using power tools to include electrical, pneumatic, and hydraulic tools.

Advancement Handbook for CE1

General CE <i>Skill Area</i>	General Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Direct jobsite storage of building material and equipment
<i>Knowledge</i> you should have to perform this skill:	<p>Recall requirements for storing of building materials and equipment to include the following:</p> <ul style="list-style-type: none"> • Requisitions to MLO (Material Liaison Office) • Material shelf life • Tracking materials • Storing materials on the jobsite • Excess and borrowed materials
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543, Chapter 3
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on recalling requirements pertaining to proper storing of project materials and equipment.

Advancement Handbook for CE1

General CE <i>Skill Area</i>	General Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Administer tool kit inventory
<i>Knowledge</i> you should have to perform this skill:	<p>Recall requirements for performing tool kit inventory to include the following:</p> <ul style="list-style-type: none"> • Accountability • How to report missing tools • Ordering missing tools • Forms to use to order tools
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Seabee Supply Manual
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on recalling requirements in performing tool kit inventories. You can also expect questions on how often inventories are performed.

Part 4

Advancement Handbook for CEC

Advancement Handbook for CEC

General CE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Organize and control deployment of material and equipment
<i>Knowledge</i> you should have to perform this skill:	<p>Recall the procedures for coordinating and directing the preparation of materials and equipment for embarkation to include the following:</p> <ul style="list-style-type: none"> • Mount-out packaging and palletized cargo • Hazardous cargo • Vehicle/Civil Engineer Support Equipment (CESE) preparation • Weight and balance
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Naval Construction Force/Seabee 1 & C, NAVEDTRA 12543 • Embarkation Manual, COMSECOND/COMTHIRDNCBINST 3122.1
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about types, sizes, and weights of mount-out boxes, hazardous cargo loading procedures and certification, preparation and marking of vehicles and CESE; fuel requirements, center of balance, and weight calculations.

Advancement Handbook for CEC

General CE <i>Skill Area</i>	Technical Administration
<i>A skill</i> you are expected to perform from the General Skill Area above:	Manage utilities and energy conservation programs
<i>Knowledge</i> you should have to perform this skill:	<p>Recall the procedures for managing utilities and energy conservation programs to include the following:</p> <ul style="list-style-type: none"> • Responsibilities • Functions performed • Division components
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Organization and Functions for Public Works Departments, NAVFAC P-318 • NAVFAC INSTRUCTION 11300.73A
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the utilities division, energy conservation programs, and functions performed.

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General CE <i>Skill Area</i>	Technical Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Administer Personnel Readiness Capability Programs (PRCP)
<i>Knowledge</i> you should have to perform this skill:	Recall the procedures for administering the PRCP program.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Personnel Readiness Capabilities Program, Volume 4, NAVFAV P-458 • Skills Assessment Manual, NAVFAC P-1105
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the requirements, procedures, training, and utilization of PRCP data and guidelines to determine a unit's readiness.

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General CE <i>Skill Area</i>	Environmental Protection
A <i>skill</i> you are expected to perform from the General Skill Area above:	Manage environmental protection programs at Naval Construction Force/Public Works (NCF/PW) construction sites, work areas, and shops
<i>Knowledge</i> you should have to perform this skill:	<p>Recall the procedures for managing environmental programs to include the following:</p> <ul style="list-style-type: none"> • Naval Construction Force Units • Public Works sites
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Environmental Protection Manual, OPNAVINST 6240.3 • Environmental and Natural Resources Protection Manual, OPNAVINST 5090.1 • Oil Spill Control for Inland Waters and Harbors, NAVFAC P-908 • Solid Waste Disposal, NAVFAC DM 5.10 • Groundwater Pollution Control, NAVFAC DM 5.14
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about environmental pollution, water, ground, and air pollution, hazardous material control, warning markings and labels, OSHA forms, and hazardous material storage.

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General CE <i>Skill Area</i>	Construction Support
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain Level I and Level II project progress charts
<i>Knowledge</i> you should have to perform this skill:	Identify the procedures for preparing and administering project Level I and Level II progress charts.
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Seabee Planner's and Estimator's Handbook, NAVFAC P-405 • Seabee Crewleader's Handbook • Construction Battalion Unit Handbook, NAVFAC P-314
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on Level I and Level II progress charts, man-day and duration estimates, percent scheduled, percent complete, man-days scheduled, cumulative man-days, actual man-days spent, and work in place.

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General CE <i>Skill Area</i>	Construction Support
A <i>skill</i> you are expected to perform from the General Skill Area above:	Coordinate and direct turnover of projects, materials, and related equipment
<i>Knowledge</i> you should have to perform this skill:	<p>Recall the procedures for coordinating and directing the turnover of projects, materials, and related equipment to include the following:</p> <ul style="list-style-type: none"> • Project, material, and equipment status • Types of turnovers • Joint Turnover Memorandum
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Seabee Crewleader's Handbook • Operations Officer Handbook, COMSECOND/COMTHIRDNCBINST 5200.2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about types of turnovers, inventory and turn-in of tools, material, and equipment, turnover procedures, and required reports.

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General CE <i>Skill Area</i>	Construction Support
A <i>skill</i> you are expected to perform from the General Skill Area above:	Coordinate and direct preparation of materials and equipment for embarkation Note: Same as OCSTD A007
<i>Knowledge</i> you should have to perform this skill:	Recall the procedures for coordinating and directing the preparation of materials and equipment for embarkation to include the following: <ul style="list-style-type: none"> • Mount-out packaging and palletized cargo • Hazardous cargo • Vehicle/Civil Engineer Support Equipment (CESE) preparation • Weight and balance
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Embarkation Manual, COMSECOND/COMTHIRDNCBINST 3122.1
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about types, sizes, and weights of mount-out boxes, hazardous cargo loading procedures and certification, preparation and marking of vehicles and CESE; fuel requirements, center of balance, and weight calculations.

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General CE <i>Skill Area</i>	Construction Support
A <i>skill</i> you are expected to perform from the General Skill Area above:	Manage construction projects using network analysis
<i>Knowledge</i> you should have to perform this skill:	<p>Recall the procedures for updating project progress charts to include the following:</p> <ul style="list-style-type: none"> • Logic network • Construction Activity Summary Sheets • Two week schedules • Bar charts • Resource leveling
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Seabee Planner's and Estimator's Handbook, NAVFAC P-405 • Seabee Crewleader's Handbook
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about managing a logic network, forward and backward pass, typical activity block, critical path, float times, contents of the Construction Activity Summary Sheet (CAS), concepts of resource leveling, and various types of bar charts.

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General CE <i>Skill Area</i>	Construction Support
A <i>skill</i> you are expected to perform from the General Skill Area above:	Evaluate effectiveness of construction quality control programs Note: same as OCCSTD F001
<i>Knowledge</i> you should have to perform this skill:	Identify the techniques used to administer construction quality control programs to include the following: <ul style="list-style-type: none"> • Quality measures • Construction methods • Evaluations • ROICC • Inspections
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Seabee Crewleader's Handbook
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about contract administration, Naval Facilities Engineering Command, cognizant authority, quality assurance program, surveillance methods, and reporting procedures.

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General CE <i>Skill Area</i>	Construction Operations
A <i>skill</i> you are expected to perform from the General Skill Area above:	Coordinate and direct installation of Advanced Based Functional Components (ABFC)
<i>Knowledge</i> you should have to perform this skill:	<p>Recall the procedures for coordinating and directing the installation of ABFC systems to include the following:</p> <ul style="list-style-type: none"> • Components • Facilities • Assemblies
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543 • Facilities Planning Guide, NAVFAC P-437, Volumes I and II
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the purpose of the ABFC, system types, the facilities planning guide, and procedures and requirements used to direct/coordinate the installation of ABFC.

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General CE <i>Skill Area</i>	Quality Assurance
A <i>skill</i> you are expected to perform from the General Skill Area above:	Administer construction quality control programs
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the techniques used to administer construction quality control programs to include the following:</p> <ul style="list-style-type: none"> • Quality measures • Construction methods • Evaluations • ROICC • Inspections
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • NCF/Seabee 1 & C, NAVEDTRA 12543
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about contract administration, Naval Facilities Engineering Command, cognizant authority, quality assurance program, surveillance methods, and reporting procedures.

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General CE <i>Skill Area</i>	Construction Combat Readiness
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform duties as platoon commander
<i>Knowledge</i> you should have to perform this skill:	<p>Identify the duties of a platoon commander to include the following:</p> <ul style="list-style-type: none"> • Rifle platoon commander • Weapons platoon commander • Mortar platoon commander • Coordinate operation in a company command post • Direct preparation of company defense plan • Coordinate operations in a command operation center (COC) • Assist in the preparation of battalion defense plans
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Seabee Combat Handbook, Volume 1, NAVEDTRA 12003 • Seabee Combat Handbook, Volume 2, NAVEDTRA 12004
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on the duties and responsibilities of a platoon commander, such as training, discipline, and control tactical deployment and in combat situations in the FDC.

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General CE <i>Skill Area</i>	General Administration
A <i>skill</i> you are expected to perform from the General Skill Area above:	Implement a maintenance and cost control program
<i>Knowledge</i> you should have to perform this skill:	<p>Recall the procedures for implementing a maintenance and cost control program to include the following:</p> <ul style="list-style-type: none"> • Organization and responsibility • Maintenance plan • Work classification • Inspection program • Job scheduling • Material Management • Accounting/Budget • Turnover procedures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Maintenance Management Program for Naval Construction Force Camps, COMSECOND/COMTHIRDNCBINST 11014.2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	<p>You can expect questions about Bravo Company maintenance platoon, camp maintenance plan, project status reports, work classification, types of inspections and inspection reports, job scheduling, shop load plan, material management, Coordinated Shipboard/Shorebased Allowance List (COSAL), collateral equipment, accounting, and a turnover inspection.</p>

Appendix 1

References Used in This Advancement Handbook

Rating	Short Title	Long Title	Chapters/ Paragraphs	Stocking Point
CE3	COMSECOND/ THIRDNCBINST 3122.1	Embarkation Manual	Chapter 3	Note 3
	COMSECOND/ THIRDNCBINST 4400.3	Seabee Supply Manual	N/A	Note 3
	NAVEDTRA 12043	Basic Military Requirements	N/A	Note 1
	NAVEDTRA 12044	Military Requirements for PO3	N/A	Note 1
	NAVEDTRA 11038	Construction Electrician Basic	N/A	Note 1
	NAVEDTRA 12014	Blueprint Reading and Sketching	N/A	Note 1
	NAVEDTRA 12003	Seabee Combat Handbook, Vol.1	N/A	Note 1
	NAVEDTRA B72-01- 00-92 NEETS Module 1	Introduction to Matter, Energy, and Direct Current	N/A	Note 1
	NAVEDTRA 172-02- 0091 NEETS Module 2	Introduction to Alternating Current and Transformers	N/A	Note 1
	NAVEDTRA B72-03- 0093 NEETS Module 3	Introduction to Circuit Protection, Control, and Measurement	N/A	Note 1
	NAVEDTRA B72-05- 00-94 NEETS Module 5	Introduction to Generators and Motors	N/A	Note 1
	NAVEDTRA B72-08- 00-92 NEETS Module 8	Introduction to Amplifiers	N/A	Note 1
	NAVEDTRA B72-24- 00-92 NEETS Module 24	Introduction to Fiber Optics	N/A	Note 1
	NAVFAC MO-200	Facilities Engineering electrical Exterior	Chapter 3 and 4	Note 4
	NAVFAC P-437	Facilities Planning Guide, Volume 1 & 2	N/A	Note 4

	Lineman's and Cableman's Handbook	Lineman's and Cableman's Handbook	N/A	Note 7
	NFPA 70	National Electrical Code (NEC) 1999	N/A	Note 7
CE2	COMSECOND/ COMTHIRD NCBINST 5312.1	Procedures for NMCB Timekeeping	N/A	Note 3
	NAVEDTRA 11038	Construction Electrician Basic	N/A	Note 1
	NAVEDTRA 11039	Construction Electrician Intermediate	N/A	Note 1
	NAVEDTRA B72-01-00-92 NEETS Module 1	Introduction to Matter, Energy, and Direct Current	N/A	Note 1
	NAVEDTRA 172-02-0091 NEETS Module 2	Introduction to Alternating Current and Transformers	N/A	Note 1
	NAVEDTRA B72-03-0093 NEETS Module 3	Introduction to Circuit Protection, Control, and Measurement	N/A	Note 1
	NAVEDTRA B72-04-00-92 NEETS Module 4	Introduction to Electrical Conductor, Wiring Techniques, and Schematic Reading	N/A	Note 1
	NAVEDTRA B72-05-00-94 NEETS Module 5	Introduction to Generators and Motors	N/A	Note 1
	NAVEDTRA B72-07-00-92 NEETS Module 7	Introduction to Solid State Devices and Power Supplies	N/A	Note 1
	NAVEDTRA B72-24-00-92 NEETS Module 24	Introduction to Fiber Optics	N/A	Note 1
	Seabee Crewleader's Handbook	Seabee Crewleader's Handbook	N/A	Note 6
	NAVEDTRA 12003	Seabee Combat Handbook, Vol.1	N/A	Note 1
	NAVFAC MO-117	Maintenance of Fire Protection Systems	N/A	Note 4
	NAVFAC P-437	Facilities Planning Guide, Volumes I & II	N/A	Note 4

	NAVFAC P-405	Seabee Planner's and Estimators Handbook	N/A	Note 4
	29 CFR	Code of Federal Regulations, Title 29	Part 1926 Subpart P	Note 7
	American Electrician's Handbook	American Electrician's Handbook 12 th Edition	N/A	Note 7
	Electric Motor Repair	Electric Motor Repair 3 rd Edition	Chapter 4	Note 7
	Lineman's and Cableman's Handbook	Lineman's and Cableman's Handbook 8 th Edition		Note 7
CE1				
	NAVEDTRA 10696-A	Engineering Aid Basic	N/A	Note 1
	NAVEDTRA 12003	Seabee Combat Handbook, Vol.1	N/A	Note 1
	NAVEDTRA 12085	Use and Care of Hand Tools and Measuring Tools	N/A	Note 1
	NAVEDTRA 11038	Construction Electrician Basic	N/A	Note 1
	NAVEDTRA 11039	Construction Electrician Intermediate	N/A	Note 1
	NAVEDTRA 12525	Construction Electrician 1	N/A	Note 1
	NAVEDTRA 12543	Naval Construction Force/Seabee 1 & C	N/A	Note 1
	NAVEDTRA B72-01-00-92 NEETS Module 1	Introduction to Matter, Energy, and Direct Current	N/A	Note 1
	NAVEDTRA 172-02-0091 NEETS Module 2	Introduction to Alternating Current and Transformers	N/A	Note 1
	NAVEDTRA B72-03-0093 NEETS Module 3	Introduction to Circuit Protection, Control, and Measurement	N/A	Note 1
	NAVFAC MO-322	Inspection of Shore Facilities, Volumes I and II	N/A	Note 4
	NAVFAC P-405	Seabee Planner's and Estimators Handbook	N/A	Notes 4

	NAVFAC P-437	Facilities Planning Guide, Volumes I & II	N/A	Notes 4
	NAVFAC P-458	Personnel Readiness Capability Program, Volume 4	N/A	Note 4
	29 CFR	Code of Federal Regulations, Title 29	Part 1926, Subpart I, Sections 1926.300 to 1926.307	Note 7
	Seabee Crewleader's Handbook	Seabee Crewleader's Handbook	N/A	Note 6
	NFPA 70 1999	National Electrical Code (NEC) 1999		Note 7

CEC	COMCBPAC/ LANTINST 5200.2	Operations Officer Handbook	N/A	Note 3
	COMSECOND/ THIRDNCBINST 3122.1	Embarkation Manual	N/A	Note 3
	COMSECOND/ COMTHIRDNCBINST 11014.2	Maintenance Management Programs for Naval Construction Force Camps	N/A	Note 3
	NAVEDTRA 12003	Seabee Combat Handbook Volume 1	N/A	Note 1
	NAVEDTRA 12004	Seabee Combat Handbook Volume 2	N/A	Note 1
	NAVEDTRA 12543	Naval Construction Force/Seabee 1 & C	N/A	Note 1
	NAVFAC DM 5.10	Solid Waste Disposal	N/A	Note 4
	NAVFAC DM 5.14	Groundwater Pollution Control	N/A	Note 4
	NAVFAC P-314	Construction Battalion Unit Handbook	N/A	Note 4
	NAVFAC P-318	Organization and Functions for Public Works Departments	N/A	Note 4
	NAVFAC P-405	Seabee Planner's and Estimators Handbook	N/A	Note 4
	NAVFAC P-437	Facilities Planning Guide, Volumes I & II	N/A	Note 4

	NAVFAC P-458	Personnel Readiness Capability Program, Volume 4	N/A	Note 4
	NAVFAC P-908	Oil Spill Control for Inland Waters and Harbors	N/A	Note 4
	NAVFAC P-1105	Skills Assessment Manual	N/A	Note 4
	OPNAVINST 5090.1 Series	Environmental and Natural Resources Protection Manual	N/A	Note 2
	OPNAVINST 6240.3	Environmental Protection Manual	N/A	Note 2
	Seabee Crewleader's Handbook	Seabee Crewleader's Handbook	N/A	Note 6

LEGEND:

Note 1– To order, MILSTRIP to NAVICP PHILA (Stk No. from NAVSUP P2002) or via INTERNET <http://www.nll.navsup.navy.mil>

Note 2 – INTERNET <http://www.neds.nebt.daps.mil/>

Note 3 – Ltr request to: Commander
Second Naval Construction Brigade
1310 8th Street Suite 100
Norfolk, VA 23521-2435

Note 4 – Ltr request to: Commander
Naval Facilities Engineering Command Detachment
Seabee Logistics Center
4111 San Pedro Street
Port Hueneme, CA 93043-4410

Note 5 – Ltr request to: Commanding Officer (Code 662)
Naval Construction Battalion Center
1000 23rd Avenue
Port Hueneme, CA 93043-4301

Note 6 – Ltr request to: Naval School
Civil Engineer Corps Officers
3502 Goodspeed Street, Suite 1
Port Hueneme, CA 93043-4336

Note 7 – Commercial Purchase